

# **Annual Drinking Water Quality Report Calendar Year (CY) 2004**

## **NASA/Goddard Space Flight Center's Wallops Flight Facility (WFF) Main Base Drinking Water System PWSID # 3001500**

### **INTRODUCTION**

This Annual Drinking Water Quality Report for CY 2004 is designed to inform you, the consumer, about the quality of the drinking water on the Main Base of WFF. Our goal is to provide you with a safe and dependable supply of drinking water, and to help you understand the efforts made to protect your water supply. The quality of your drinking water must meet federal and state requirements as administered by the Environmental Protection Administration (EPA) and the Virginia Department of Health (VDH).

If you have questions about this report, wish to obtain additional information about any aspect of your drinking water, or would like to know how to participate in decisions that may affect the quality of your drinking water, please contact:

<b>Wayne Redmond of the Facilities Management Branch at (757) 824-1191</b>
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### **GENERAL INFORMATION**

As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals, in some cases radioactive materials, and can pick up substances resulting from the presence of animals, or from human activities. Substances (referred to as contaminants) in water sources may come from septic systems, discharges from domestic or industrial wastewater treatment facilities, or from agricultural and farming activities.

All drinking water, including bottled drinking water, may reasonably be expected to contain very small amounts of some contaminants. The presence of contaminants does not necessarily indicate that the water poses a health risk. Some people are more vulnerable to contaminants in drinking water than the general population. Immuno-deficient persons, such as those undergoing chemotherapy or organ transplantation, persons with HIV/AIDS and other immune system disorders, as well as some elderly and infants, can be at risk for infections. These people should seek advice about local drinking water quality from health care providers in that community.

The EPA and the Centers for Disease Control and Prevention (CDCP) guidelines on appropriate means to lessen the risk of disease or infection by contaminants in drinking water are available from the Safe Drinking Water Hotline at 1(800)-426-4791.

The sources of all drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. Contaminants that may be present in source water include: (1) Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife. (2) Inorganic contaminants, such as salts and metals, which can be naturally-occurring or result from storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming. (3) Pesticides and herbicides, which may come from a variety of sources including agriculture, urban storm water runoff, and residential uses. (4) Organic chemical contaminants, including synthetic and volatile organic chemicals, which are byproducts of industrial processes and petroleum production, and also from fueling stations, urban storm water runoff, and septic systems. (5) Radioactive contaminants, which can be naturally occurring, or the result of oil and gas production and mining activities. In order to ensure that tap water is safe to drink, EPA prescribes regulations that limit the amount of certain contaminants allowed in water provided by public water systems. Food and Drug Administration regulations establish limits for contaminants in bottled water that must provide the same protection for public health.

## **SOURCES AND TREATMENT OF YOUR DRINKING WATER**

The sources of your drinking water are groundwater wells, as described below:

NASA/Wallops Flight Facility receives its water from five wells. The wells are located at the following locations:

Well #1 – Between Buildings E134 and N159. This well is 260 feet deep.

Well #2 – Between Bldg. D12 and runway. This well is 150 feet deep.

Well #3 – Between Bldg. F157 and Storage Bldg. This well is 253 feet deep.

Well #4 – Between Bldg. F160 and Tennis Court. This well is 265 feet deep.

Well #5 – Between Bldg. F10 and Coast Guard Housing. This well is 260 feet deep.

Is there any treatment of your drinking water supply? ( ☒ )Yes ( ☐ )No

If yes, it is described below.

**The supply undergoes treatment by chlorination.**

The groundwater sources are not required to be chlorinated unless there is a potential source of contamination, the water fails to meet the bacteriological quality standards, or the supply is under the direct influence of surface water.

WFF chooses chlorination as its treatment technique for its groundwater supply. There is no residual chlorine requirement for ground water sources at Wallops Flight Facility. However, since WFF chooses this treatment technique, the VDH recommends that WFF maintain a residual chlorine level between 0.1-0.5 mg/L throughout the distribution system.

The Virginia Department of Health conducted a Source Water Assessment of the NASA Wallops Flight Center Waterworks in 2002. Well #1, Well #2, Well #3, Well #4, and Well #5 were determined to be of low susceptibility to contamination using the criteria developed by the state in its approved Source Water Assessment Program. The assessment report consists of maps showing the Source Water Assessment area, an inventory of known Land Use Activity Sites in Zone 1, Susceptibility Explanation Chart, and Definitions of Key Terms. The report is available by contacting your waterworks system owner/operator at the phone number or address included in the Consumer Confidence Report (CCR).

## DEFINITIONS

In this report and the table that follows, you may see many terms and abbreviations with which you are not familiar. The following definitions are provided to help you understand these terms:

*Action Level (AL)* – The concentration of a contaminant that, if exceeded, triggers treatment or other requirements that a water system must follow.

*HAA5* – Haloacetic Acids; The acronym for the sum of the five haloacetic acids that might be formed in drinking water by the addition of chlorine.

*Contaminant* - Any constituent in the water other than hydrogen and oxygen (H<sub>2</sub>O) is considered a contaminant. Contaminants can be introduced into the water through natural means or through human introduction (anthropogenically). Regulatory agencies have established safe drinking water contaminant levels for most constituents.

*Maximum Contaminant Level (MCL)* – The highest level of a contaminant that is allowed in drinking water. MCL is set as close to the MCLG as feasible, using the best available treatment technology.

*Maximum Contaminant Level Goal, (MCLG)* – The level of a contaminant in drinking water below which there is no known or expected health risk. MCLG allows for a margin of safety.

*MRDL* – Maximum Residual Disinfection Level.

*MRDLG* – Maximum Residual Disinfection Level Goal.

*Non-detect (ND)* – Lab analysis indicating that the contaminant is not present, “not detected.”

*Parts per million (ppm) or Milligrams per liter (mg/l)* – One part per million corresponds to one minute in two years, or a single penny in ten thousand dollars.

*Parts per billion (ppb) or Micrograms per liter* – One part per billion corresponds to one minute in 2,000 years, or a single penny in ten million dollars.

*Picocuries per liter (pCi/l)* – Picocuries per liter is a measure of the radioactivity in water.

*Treatment Technique (TT)* – a process intended to reduce the level of a contaminant in drinking water.

*TTHM* – Total Trihalomethanes. The sum of the trihalomethane compounds (there are four) which might be formed during disinfection procedure with chlorine.

## WATER MONITORING

Your drinking water is routinely monitored according to Federal and State regulations. The table lists only those contaminants that have had some level of detection within the past 5 years. Many other contaminants have been analyzed for, but were not present at all or were below the detection limits of the lab equipment. Contaminants below detection limits are not usually of concern.

State regulators allow WFF to monitor several contaminants less than once per year because the concentrations of these contaminants do not change frequently. Much of the data in the table is more than one year old, but is still considered accurate for those contaminants. The table on the next page shows results of monitoring for the period December 1999 through December 2004.

## WATER QUALITY RESULTS

Regulated Contaminants (Units)	MCLG	MCL	Level Found	Range of Results Obtained	Violation	Date of Sample	Typical Source of Contamination
Gross Alpha Radiation (pCi/l)	0	15	0.0		No	04/07/03	Erosion of natural deposits
Gross Beta Radiation (pCi/l)	0	50	12.0		No	04/07/03	Decay of natural and man-made deposits
Radium-228 (pCi/l)	0	5	0.5		No	04/07/03	Erosion of natural deposits
Combined Radium	0	5 pCi/L	2.0 pCi/L		No	04/07/03	Erosion of natural deposits
Arsenic (ppb)	0	50***	2		No	3/8/04	Erosion of natural deposits; Runoff from orchards; Runoff from glass and electronics production wastes
TTHM	0	80	53		No	09/03/04	By-product of drinking water chlorination
HAA5	0	60	44		No	09/03/04	By-product of drinking water chlorination
Regulated Contaminants (Units)	MCLG	MCL	Level Found	Range of Results Obtained	Violation	Date of Sample	Typical Source of Contamination
Chlorine	4 MRDL	4MRDLG	0.37		No	CY 2004	Water additive to control microbes
Copper (ppm)	1.3	AL=1.3	0.836 1.270	(ND-4.650)*	No	26 Feb 03- 27 Feb 03 & 25 Nov 03 – 4 Dec 03	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives

Lead, Pb (ppb)	0	AL=15	33 84	(ND – 172)**	No	26 Feb 03- 27 Feb 03 & 25 Nov 03 – 4 Dec 03	Corrosion of household plumbing systems; Erosion of natural deposits
<b>Unregulated Contaminants (Units)</b>							
Chloroform (ppb)			8.7		No	04/11/02	By-product of chlorination
Bromodichloromethane (ppb)			3.4		No	04/11/02	By-product of chlorination
Dibromochloromethane (ppb)			1.3		No	04/11/02	By-product of chlorination

\* 3 sites out of 38 sampled were above the Copper Action Level.

\*\*13 sites out of 38 sampled were above the Lead Action Level.

\*\*\* MCL to be lowered to 10 ppb in CY 2006.

Note: The results for lead (Pb) exceeded the requirements of the Lead and Copper Rule during February and December 2003. WFF personnel issued a notice to inform the public that some faucets have elevated lead levels and placed filters on drinking water fountains and other sources to remove metals, including lead. Lead and Copper testing were suspended during CY2004 pending approval and addition of a Corrosion Treatment System. WFF received a Waterworks Construction Permit from VDH in December 2004 to proceed with installation of corrosion control equipment. Lead and Copper results for CY2003 are available in the “Drinking Water Informational Notice” and in the CY2004 CCR.

Other drinking water constituents of interest are as follows:

The test for iron in the water indicated a level of 0.29 mg/l. The Secondary MCL for iron is 0.3 mg/l. Iron can be an objectionable constituent in water supplies for domestic or industrial use. Iron may impart brownish discolorations to laundered goods. The taste it imparts to water may be described as bitter or astringent, and may adversely affect the taste of other beverages. Human diets contain 7 to 35 milligrams of iron per day, and average 16 milligrams per day. The allowable amount of iron in drinking water constitutes only a small fraction of the amount normally consumed and does not have toxicological significance.

## VIOLATION INFORMATION

Did any MCL or TT violations occur during the year? ( ) Yes ( **X** ) No

If yes, an explanation of the violation, including length, potential health effects, and actions we are taking to correct the violations, follow:

No violations occurred during 2004.

Did any (Corrective Action or Consent Decree) monitoring, reporting, or other violations occur during the year? ( ) Yes ( X ) **No**

If yes, an explanation of the violation, including potential adverse health effects, and steps we are taking to correct the violation, follows:

No additional monitoring or reporting was required in 2004.

### **ADDITIONAL HEALTH INFORMATION**

Certain contaminants (such as Cryptosporidium, Radon, Arsenic, Nitrate, and Lead), if present in your drinking water, may be of special concern to consumers. Are any of those contaminants present at levels of concern that must be reported to you? ( X ) **Yes, Lead (Pb) is present.**

If yes, health information is provided below.

Infants and children who drink water that contains lead (Pb) in excess of the action level could experience delays in their physical or mental development. Children may show slight deficits in attention span and learning abilities after exposure. Adults who drink this water over many years could develop kidney problems or high blood pressure.

**Note: WFF personnel have equipped many drinking water sources, including fountains, with filters to capture lead. Please make use of potable water sources equipped with filters for drinking, cooking, etc.**

This Drinking Water Quality Report was prepared by:

**EG&G TECHNICAL SERVICES, a division of URS**  
**Analytical Laboratory Support Contractor**